

PATENT SPECIFICATION



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COMPLETE SPECIFICATION.

Improvements in or relating to the Manufacture of Lacquers, Films, Plastic Masses and the like.

We, DEUTSCHE HYDRIERWERKE AG-
TIENGESSELLSCHAFT, a Joint Stock Com-
pany organised under German Law, of
Kantstrasse 163, Berlin-Charlottenburg,

5 Germany, and of Rodleben, bei Rossau,
Anhalt, Germany, do hereby declare the
nature of this invention and in what
manner the same is to be performed, to be
particularly described and ascertained in

10 and by the following statement :—

The present invention relates to im-
provements in or relating to the manu-
facture of lacquers, films, plastic masses
and the like having cellulose ester bases.

15 The use of esters of organic dicarboxy-
lic acids as softening and gelatinising
agents for lacquers and plastic masses of
cellulose esters is already known. Thus
for this purpose hitherto adipic acid and

20 phthalic acid esters have frequently been
used which within certain limits exhibit
satisfactory softening and gelatinising
properties without however entirely satis-
fying the requirements placed on such

25 products. The action of softening and
gelatinising agents in the film is not
finally a question of the solvent prop-
erties of these agents which impart hom-
ogeneity and plasticity to the films, plastic

30 masses or the like. These properties are
however only present to a limited extent
in the case of the known softening and
gelatinising agents especially when it is
a question of working up cellulose esters
35 of the type of acetyl cellulose.

Now surprisingly in the esters of
hydroxyl containing aliphatic polycar-
boxylic acids and mono or polynuclear
40 hydroaromatic alcohols a group of
softening and gelatinising agents has
been found which possess very good plas-
ticising properties and above all are
characterised by outstanding solvent

45 powers so that they can be employed with
great advantage for the preparation of
lacquers, plastic masses and films of cel-
lulose esters especially of acetyl cellulose.
As alcoholic components of the esters, are

50 to be considered the mono or polynuclear
hydroaromatic alcohols such for example
as the hydrogenated phenols, naphthols
or also terpene-like alcohols whereby a
certain variation in the properties of the

[Price 1s.]

esters only arises in so far as the esters
with higher molecular alcohols possess a
somewhat lower solvent power to make up
for which however they impart to the pro-
ducts produced with them a greater flexi-
bility (fulness). Esters of the kind men-
tioned are for example malic acid dicyclo-
hexyl ester, tartaric acid dimethyl
cyclohexyl ester, tartaric acid dideca-
hydro- β -naphthyl ester, malic acid di-
menthyl ester, citric acid tricyclohexyl
ester and the like.

55 The advantageous properties of the said
esters as softening and gelatinising agents
are probably also to be ascribed to the
hydroxyl groups contained in the acid
components which perhaps bring about an
increase of the solvent power of these
esters.

60 In order that the invention may be well
understood the following examples will
be given by way of illustration only.

EXAMPLE 1.

65 50 parts of acetyl cellulose and 20 parts
of tartaric acid dimethyl cyclohexyl ester
are dissolved in 350 parts of lactic acid
ethyl ester and 100 parts of toluene are
added. After spreading and drying, the
lacquer obtained gives an acetyl cellulose
film of excellent homogeneity and high
flexibility.

EXAMPLE 2.

70 25 parts of acetyl cellulose with addi-
tion of 12 parts of tartaric acid dideca-
hydro- β -naphthyl ester and 6 parts of tri-
cresyl phosphate are dissolved in a sol-
vent mixture of 120 parts of ethyl alcohol
and 55 parts of acetone with addition of
15 parts of toluene. After pouring out
and evaporating off the solvent the pro-
duct obtained gives an acetyl cellulose film
of high elasticity and good resistance to
atmospheric influences.

75 Having now particularly described and
ascertained the nature of our said inven-
tion and in what manner the same is to
be performed, we declare that what we 100
claim is :—

80 1. A method of manufacturing
lacquers, films, plastic masses and the like
from cellulose esters characterised by the
use as softening, gelatinising and like 105
agents of one or more esters of hydroxyl

containing, aliphatic polycarboxylic acids and mono or polynuclear hydroaromatic alcohols with or without other softening or like agents.

5. 2. A method as claimed in Claim 1 in which one or more of the following esters is/are employed: malic acid dicyclohexyl ester, tartaric acid dimethyl cyclohexyl ester, tartaric acid didecahydro- β -naphthyl ester, malic acid dimethyl ester, citric acid tricyclohexyl ester.

10. 3. A method of manufacturing lacquers, films plastic masses and the like from cellulose esters especially acetyl cellulose substantially as described.

15. 4. Lacquers, films, plastic masses and the like having a base of cellulose esters and containing as softening, gelatinising and like agents one or more esters of hydroxyl containing aliphatic polycar-

boxylic acids and mono or polynuclear hydroaromatic alcohols.

5. Lacquers, films, plastic masses and the like as claimed in Claim 5 containing one or more of the following esters:—
25 malic acid dicyclohexyl ester, tartaric acid dimethyl cyclohexyl ester, tartaric acid didecahydro- β -naphthyl ester, malic acid dimethyl ester, citric acid tricyclohexyl ester.

6. Lacquers, films, plastic masses and the like having a cellulose ester base, substantially as described.

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Dated this 19th day of November, 1934.

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